Network Audio Encoder

NAE1000

User Manual

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1 Introduction

1.1 Abstract

Caton NAE1000 digital audio encoder is a purpose-built product focused on audio encoding solution for audio-only professional broadcasting application. Instead of utilizing spare audio ports on existing video encoders, NAE1000 is specialized for setting up the most professional audio encoding system.

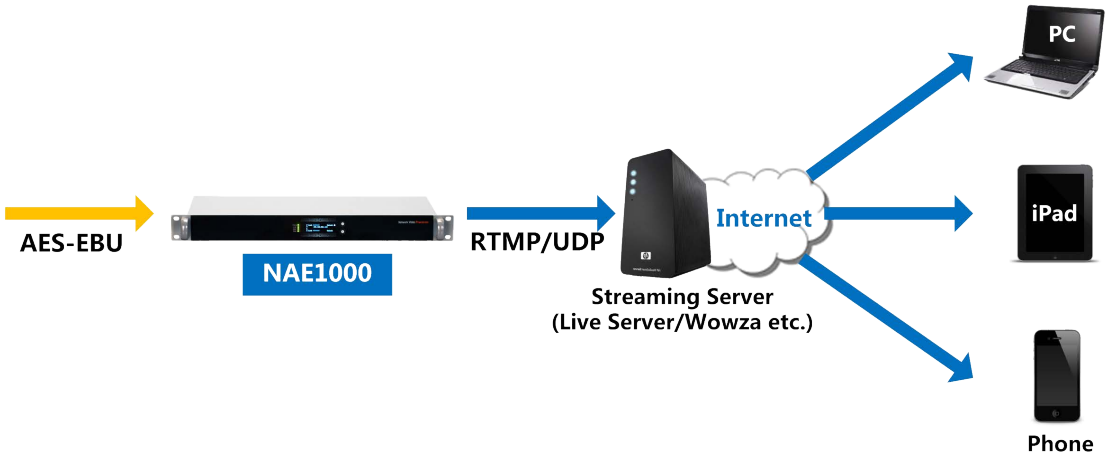
NAE1000 supports advanced audio encoding, such as MPEG1 Layer II、AAC etc. It also supports IP output, can set up digital audio broadcasting system rapidly, providing ideal digital audio broadcasting service via Ethernet/Internet.

1.2 Main Features

- Support MPEG1 Layer II, AAC audio encoding (Mono/Stereo)
- Support AES/EBU digital audio input
- Built- in 10/100 Base-T Ethernet IP output
- Support UDP, RTMP protocol
- Support WEB control
- 1U rack-mounted single channel audio encoder；

1.3 Application Scenarios

NAE1000 can seamlessly connect to Streaming Media Server such as Wowza. It can provide audio real-time live broadcasting service via Ethernet/Internet, can be used widely for radio station, campus, enterprise or personal radio station, perfectly meets audio requirements in booming Mobile Internet Age.



1.4 Panel Design

1.4.1 Front Panel

The front panel consists of Indicator Light, OLED Screen, Control Buttons.

1) Indicator Light：Indicate the current device status. The 4 lights represent (from top to bottom):

   i Power Light: Green represent right power status, Red represent abnormal power status.

   ii Encoding Light: Green represent right encoding status, Red represent abnormal encoding status.

iii Undefined Light: This light is not defined.

iv Audio Input Light: Green represent right audio input status, Red represent abnormal audio input status.

2) OLED Screen: Display the basic configuration & parameters of the device.

3) Control Buttons: Include “Select”, “Adjust”, “Enter” and “Esc”.

1.4.2 Rear Panel

The rear panel consists of ETH, Reset, AES-EBU interface, Power Switch and Power.

1) AES-EBU interface: Input Audio Signals.

2) ETH(x2): Network interface to control the device through Internet， also for IP output of encoded streaming.

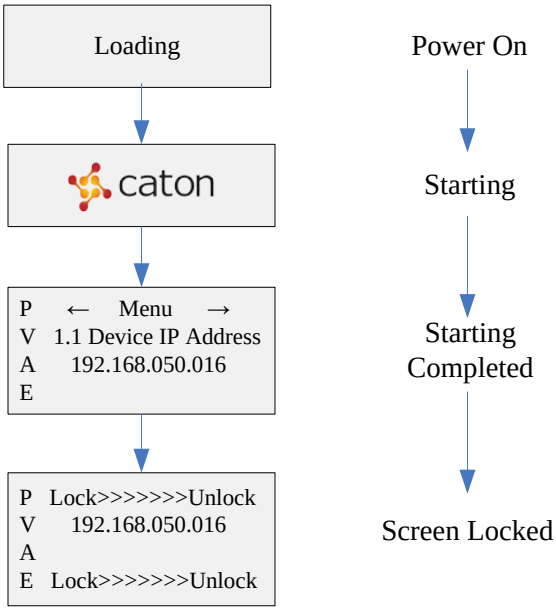
3) Reset: Press over 5 seconds to recover to the default settings.

4) Power Switch: After the power supply, press the button to start the device.

5) Power: Connect the external power to supply to the device

2 Power up

After the power supply, press the power switch to start the device. Then the OLED screen will display as follows:



3 Front Panel Control

3.1 Control Method

Through the NAE1000 front panel, user can do the following operations:

- Unlock: Slide the “Select” button or “Adjust” button from left to right to unlock the OLED screen. The screen will be locked if there is no operation over 1 minute.
- Enter: Press the “Enter” button to enter the submenu or save the modifications.
- Esc: Press the “Esc” button to return to the upper menu or cancel the modifications.
- Select: Press the “Select” button to select the menu or select the position of parameters.
- Adjust: Press the “Adjust” button to select the option or modify the parameter value.

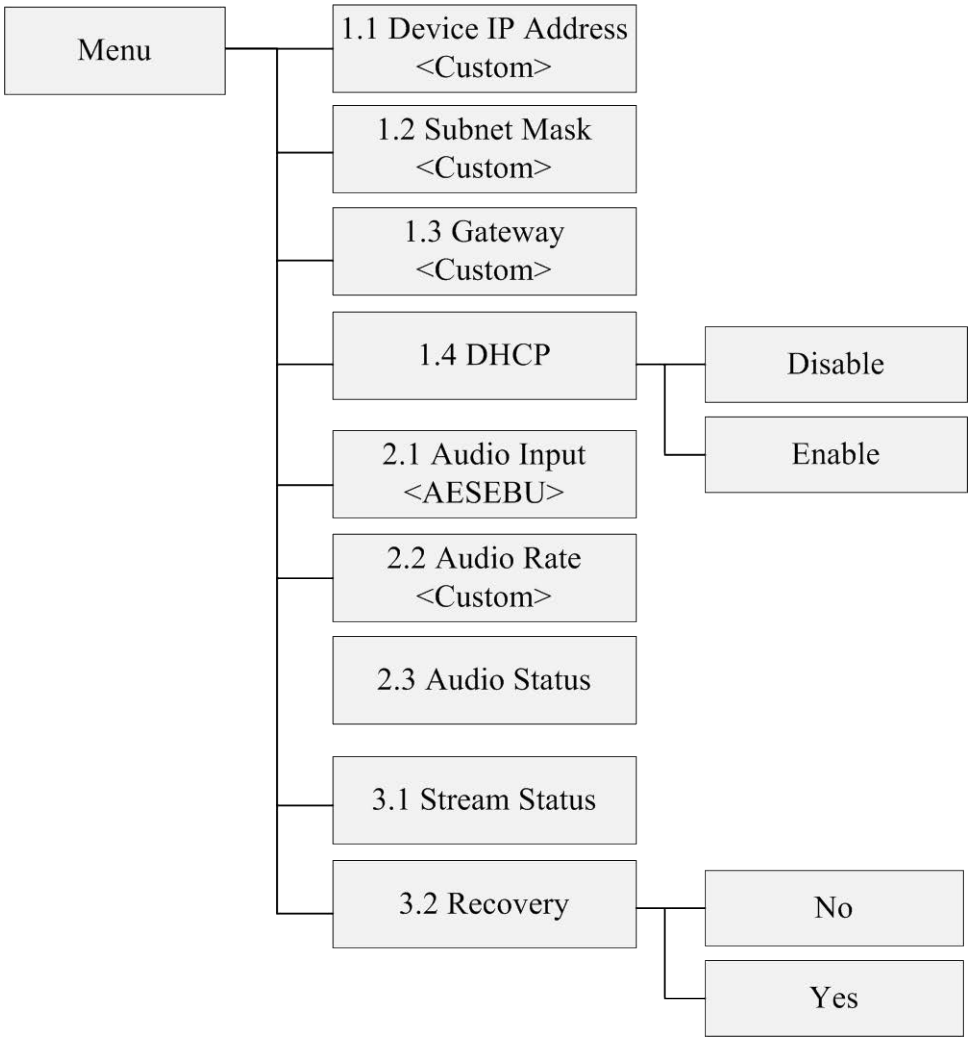
Steps to configure parameters through front panel:

Slide the “Select” button to select the menu, press the “Enter” button to enter the edit mode:

To modify the value of parameters, slide the “Select” button to select the position of parameters. After the cursor moved to the right position, slide the “Adjust” button to adjust the value of parameters (Slide the “Adjust” button towards the left to decrease the value, Slide towards the right to increase the value). Press the “Enter” button to save the modifications, press the “Esc” button to cancel the modifications.

To change the option of parameters, slide the “Adjust” button to select the option. Press the “Enter” button to save the modifications, press the “Esc” button to cancel the modifications.

3.2 Menu Overview



- Device IP Address：View or set the IP address of the device.

  User can customize IP address of the device. The default IP address of the device is 192.168.1.12.

- Subnet Mask：View or set the subnet mask of the device.

  User can customize subnet mask of the device. The default subnet mask of the device is 255.255.255.0。

- Gateway：View or set the gateway of the device.

  User can customize gateway of the device. The default gateway of the device is 192.168.1.1。

- DHCP：View or select whether to open DHCP or not.

- Audio Input：View the audio input.
- Audio Rate：View or set the audio bit rate.

  User can customize audio bit rate of the device. The range is 00010 to 01000.
- Audio Status：View the status of the audio input.
- Stream Status：View the status of the audio encoding.
- Recovery：Recover to the default setting.

  NO：Not to recover；YES：Recover to the default setting.

4 Web Control

4.1 Web browser configuration and log in

4.1.1 Web browser configuration

User can configure the device via Internet. Take the follow steps to log in before using web UI control:

☞ Prepare a PC with web browser.

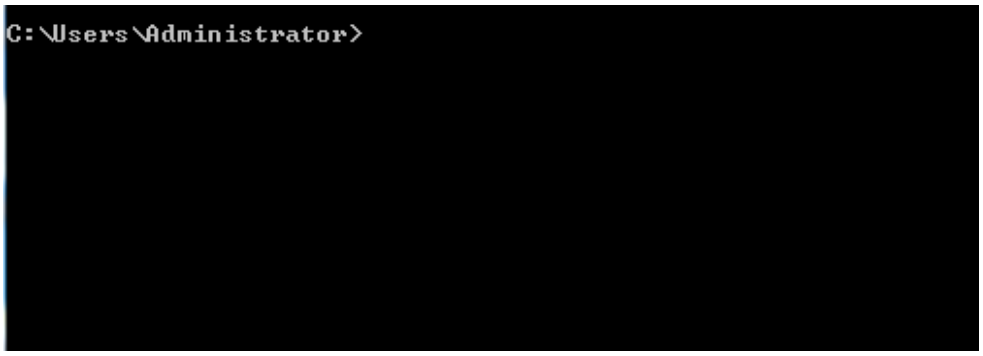
☞ Connect PC and the device through network interface.

☞ Make sure that the IP address of the device and PC are in the same network segment: Click

, then click

, In the “open”the back of the blank input “CMD”and Click

,then you will see:



☞ Input **ipconfig**, click enter, you will see:

Connection-specific DNS Suffix . :
IP Address. . . . . : 202.0.0.134
Subnet Mask . . . . . : 255.255.255.0
IP Address. . . . . : fe80::6e62:6dff:feab:ef69%5
Default Gateway . . . . . : 202.0.0.1

Tips：202.0.0.134 is the local IP address of the PC.

☞ Confirm the device’s IP address via front panel, as shown in figure 4.1 :

Figure 4.1 Front Panel Display

Tips：192.168.50.16 is the local IP address of the device.

☞ If the IP address of the device and PC are in the different network segments, please modify the device's IP address to make sure that the IP address of the device and PC are in the same network segment.

Tips: Ensure that the IP address was not occupied in the network to avoid address conflict.

4.1.2 Log In

Input the device IP address in the web browser, click enter, you will see the page as shown in figure 4.2:

Windows Security
The server 192.168.50.112 is asking for your user name and password. The server reports that it is from ..
Warning: Your user name and password will be sent using basic authentication on a connection that isn't secure.
User name
Password
Remember my credentials
OK
Cancel

Figure 4.2 Log In

Input default account and password, the default account and password are both "admin". You can change the password after login. Please refer to *4.5.5 Password*

When you get a successful user authentication at the login prompt, you will see as shown in figure 4.3.

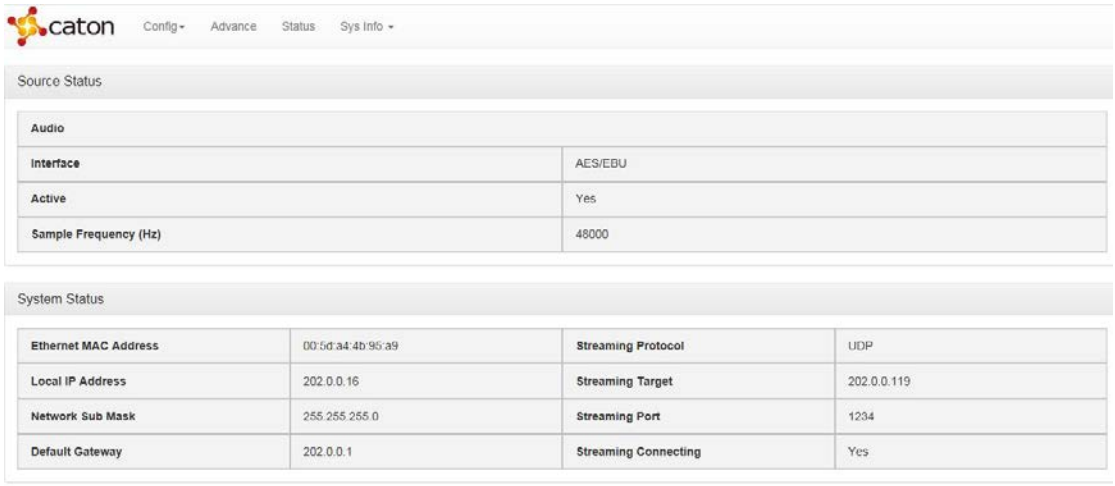


Figure 4.3 Log in successfully

You can view or set the parameter from the main menu of **Config/Advance/Status/Sys Info** and the drop-down menu.

4.2 Basic Configuration

Select **Config** in the main menu, then you will see as shown in figure 4.4.

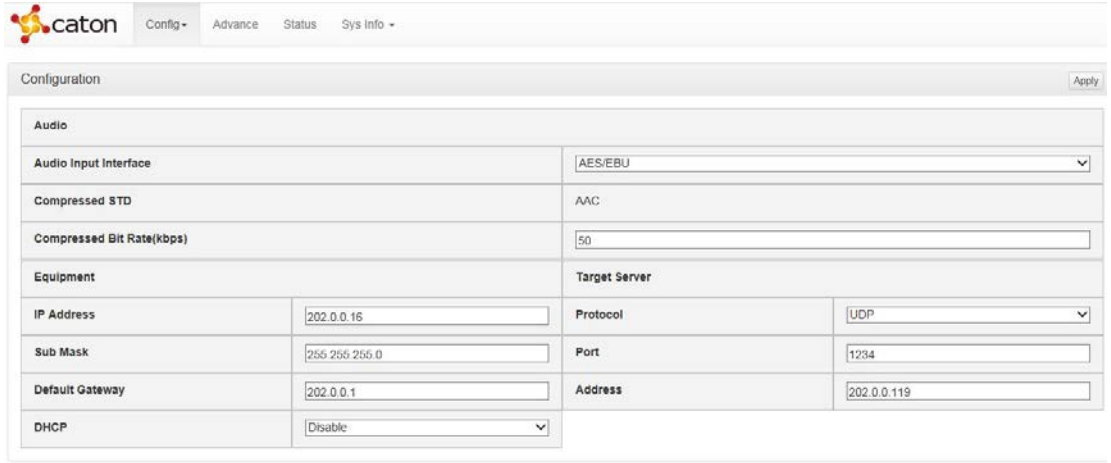


Figure 4.4 Configuration

You can configure the basic settings of the device referring to table 4-1. Click Apply to save the modifications.

Table 4-1 Basic Configuration Parameters

Menu		Range
Audio	Audio Input Interface	AES/EBU
	Compressed Bit Rate(kbps)	10~1000
Equipment	IP Address	<Custom>
	Sub Mask	<Custom>
	Default Gateway	<Custom>
	DHCP	Disable
		Enable
Target Server	Protocol	UDP
		RTMP
	Port	<Custom>
	Address	<Custom>

Tips：Target IP address can be not only a unicast address but also a multicast address. When it is a unicast address, the IP address of the device and the target IP address should be in the same IP network segment.

4.3 Advanced Configuration

Select **Advance** in the main menu, then you will see as shown in figure 4.5.

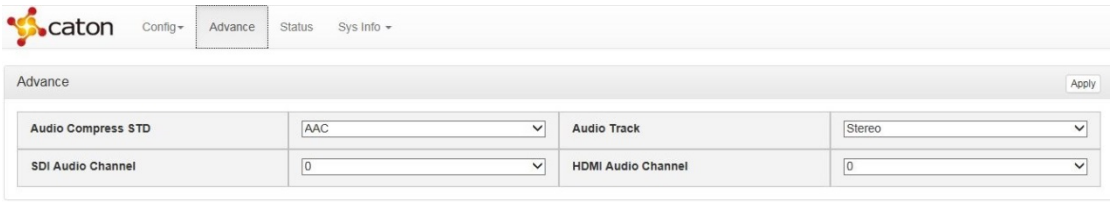


Figure 4.5 Advance

You can configure the advanced settings of the device referring to table 4-2. Click Apply to save the modifications.

Table 4-2 Advanced Configuration Parameters

Menu	Range
Audio Compress STD	AAC
Audio Track	Stereo
	Mono-L
	Mono-R
SDI Audio Channel	0~3
HDMI Audio Channel	0~3

4.4 Status

Select Status in the main menu, then you will see as shown in figure 4.6.

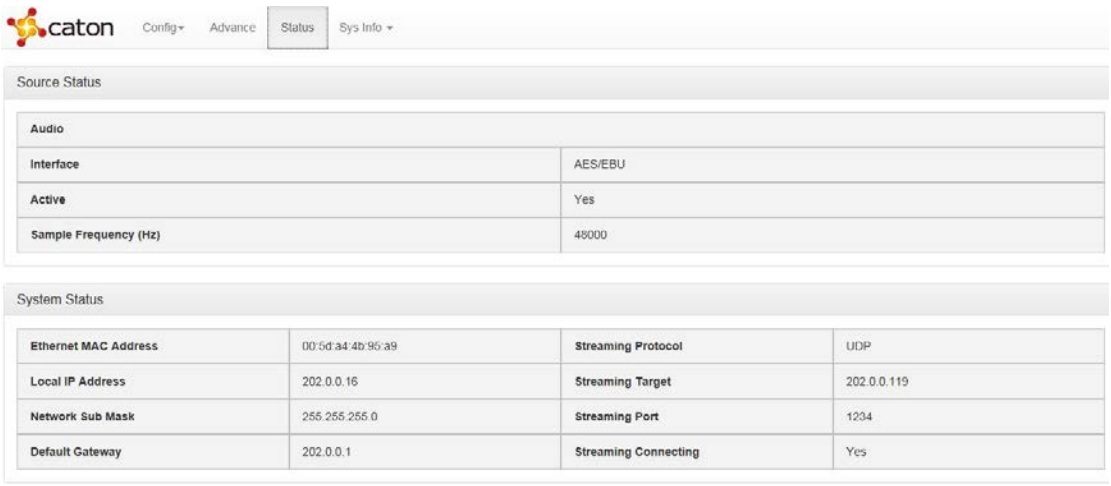


Figure 4.6 Status

You can view the status of the device.

4.5 System Information

You can view or set system information from the drop-menu of **Sys Info**. The drop-down menu of **Sys Info** is as show in figure 4.7.

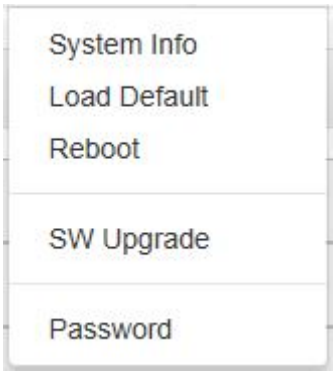


*Figure 4.7 the drop-down menu of **Sys Info***

4.5.1 System Info

Select System Info from the drop-menu of **Sys Info**, then you will see as show in figure 4.8.

Figure 4.8 System Information

You can view the system information of the device.

4.5.2 Load Default

Select Load Default from the drop-menu of **Sys Info**, then you will see as show in figure 4.9.

Figure 4.9 Load Default

You can click Preset Parameter to recover to the default settings.

4.5.3 Reboot

Select Reboot from the drop-menu of Sys Info, then you will see as show in

figure 4.10.

Figure 4.10 Reboot

You can click Reboot to reboot the device.

4.5.4 Upgrade

Select SW Upgrade from the drop-menu of Sys Info, then you will see as show in figure 4.11.

Figure 4.11 Upgrade

You can upgrade the software version of the device. Click Browse... to select the upgrade file, and click Submit to upgrade the device. The upgrade process will last about half a minute. The device will reboot automatically after upgraded, and recover to the default settings.

4.5.5 Password

Select Password from the drop-menu of Sys Info, then you will see as show in figure 4.12.

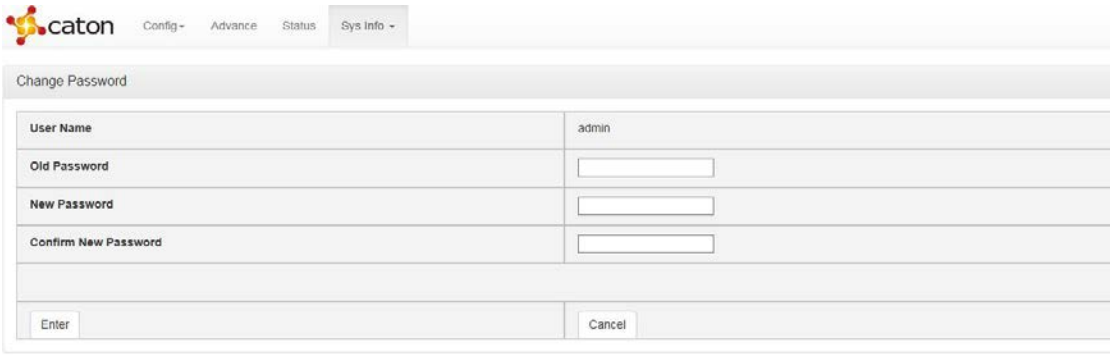


Figure 4.12 Password

Click Enter to save the new password, click Cancel to cancel the modifications.

5 Technical Specifications

5.1 Audio Encoding

Audio Encoding	MPEG-1 Layer II（MP2），AAC-LC
Encoding Mode	Mono, Stereo
Sampling Frequency	48KHz
Sampling Precision	24bit
Encoding Bit Rate	MPEG-1 Layer II（MP2）: 112,128,160,192,224,256, 320,384Kbps AAC:30Kbps～384Kbps

5.2 Input & Output

Audio Input	Digital Audio (AES/EBU)
Input Interface	CANNON (1 x XLR female)
Audio Output	IP output (UDP, RTMP）
IP Output Protocol	AAC Over RTMP，MP2 Over UDP，AAC Over UDP
IP Interface	2 x RJ45，10/100 Base-T

5.3 Physical Specifications

Size	19"x1.75"x 24"(1RU), 48.26cm x 4.45cm x 60.69cm
Color	Gray
Weight	3.4Kg

5.4 Environment Specifications

Power Module	2 (Built-in 2 battery module)
Voltage	AC 100～240V, 50/60Hz
Power Consumption	<40W
Temperature	-10~50℃
Operating Humidity	＜90%（Non-condensate）